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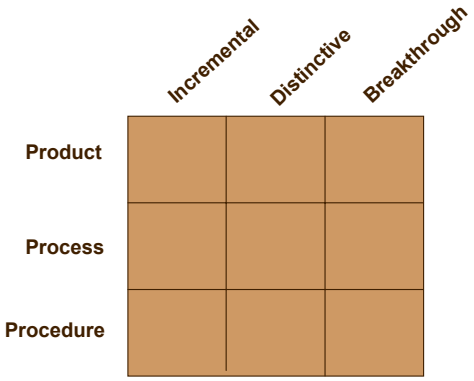
DONNA PRESTWOOD & PAUL SCHUMANN

Innovation Strategy: Creating Competitive Advantage ... For Awhile

A Brief Innovation Case History of the U.S. Automobile Industry

An innovation strategy is only good for a finite amount of time. One of the worst mistakes an organization can make is to assume that because an innovation strategy has been successful it will always be successful. In reality, the environment shifts -- customers' needs change, competition gets smarter, technologies improve, and the organization itself evolves -- and over time the strategy becomes obsolete. Time is relative. It depends upon the dynamics of the industry.

An innovation strategy is a complex pattern as represented by the innovation profile. There are nine different types of innovation and therefore at least nine different principal foci of strategic intent, and there are even more complex secondary and tertiary patterns. The innovation profile is a powerful tool for creating and depicting innovation strategies.



Once an innovation strategy has been selected, there is the establishment of a competitive advantage and an immediate vulnerability. On the competitive battlefield, an innovation strategy is like a decision to attack. Each movement creates the opportunity for a response. Each innovation strategy has included within it the seeds of its own destruction. This implies that strategies should be living concepts that link markets, organizational capabilities, business objectives, and stakeholder desires.

The U.S. automobile industry is a classic example illustrating the need for continuous change in innovation strategy. There have been six major shifts in innovation strategy in the auto industry from the 1820s until the 2000s.

Experimenters and Hobbyists: The Early Days

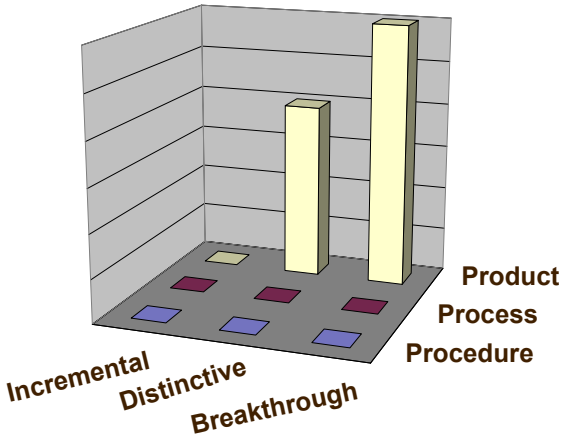
The search for a self-propelled wheeled vehicle began with Cugnot's breakthough product innovation, the steam-powered tricycle. Other product competitors followed, with internal combustion engines and electric motors providing energy sources. During this period the fastest car was, surprisingly, an electric vehicle.

From the 1880s to the 1920s there was a rapid proliferation of different versions of the automobile. Hundreds of companies were created, each with its unique approach. Carriage shops in many cases acted as incubators.

To own a car during this period required daring and at least a modicum of mechanical ability. Purchasers were the early adopters, experimenters, and hobbyists, who weren't concerned about repairing the frequent breakdowns because of their capability, and certainly not totally dependent on the auto as a means of transportation or business. There were few roads, and those were of poor quality.

Cugnot's steam powered tricycle, a breakthrough product innovation, resulted in many distinctive and incremental product innovations. Competitors were searching for the right technologies and the right configurations to meet market needs. Characteristic of a nascent industry, there was not a lot of focus on process or procedure innovations.

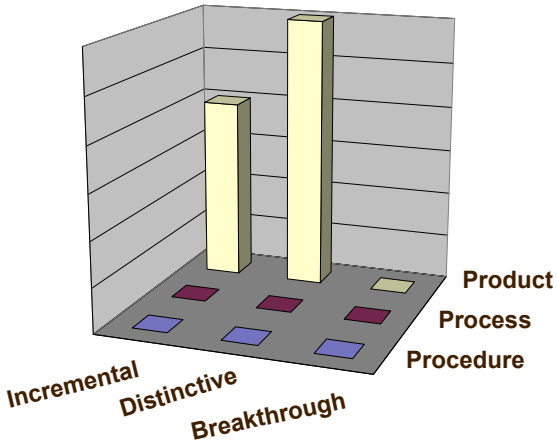
Experimenters and Hobbyists - the Early Days



Search and Learn: The Development of the Ford Model T

When Henry Ford began his search for the perfect car, there was still a great deal of technological uncertainty and, of course, a lot of innovation opportunity. No one knew for sure which engine type would win. Certainly no one knew which configuration would best fit the market. Ford went through a process of searching, trying different configurations of internal combustion engine autos, to find the car for the "common man." The "Model T" designation was not capricious but the result of trials A through S, which culminated in 1908 in the Model T. The major innovation strategy during this period was a continuation of the distinctive product innovations of the past, along with a movement toward incremental product innovations.

Search and Learn - The Development of the Model T.



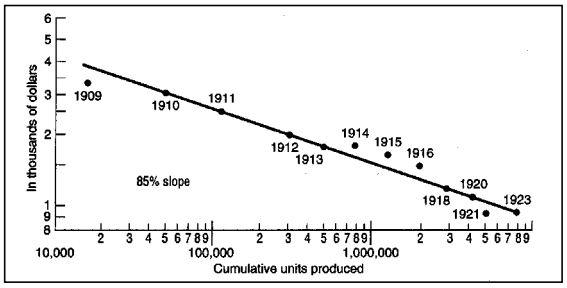
A Car for Everyone: Exploiting the Model T

Ford correctly recognized that the driving forces for change in the United States were creating a need for cheap, reliable, independent methods of transportation. He correctly understood that if he could rationalize the manufacturing system and drive the cost down, he could capture a large share of the market. To improve the reliability and decrease the cost, Ford instituted a series of product, process, and procedure innova-

Product Innovations	Process Innovations	Procedure Innovations
Four-cylinder engine (cost efficiency)	Reinforced-concrete factory with windows/ skylights	High pay (double competitors)
Works completely enclosed (more reliable)	Interchangeability of parts	Nonstop eight-hour shift rotations
Durable (stood up to bumps)	Moving assembly line	
Reliable (didn't strip gears)	Task/part segmentation	
$825 price (competitors' $2000)		

The results of all of these innovations plus an incredible number of subsequent incremental innovations produced impressive cost reductions.

Price of the Model T, 1909-1923 (average list price in 1958 dollars)



A story shows the depth of the rationalization. Ford requested that gears be shipped in wooden boxes, and he specified the dimensions of the pieces of wood in the boxes. This wood was just the right size to be used as is for the floorboards of the cars.

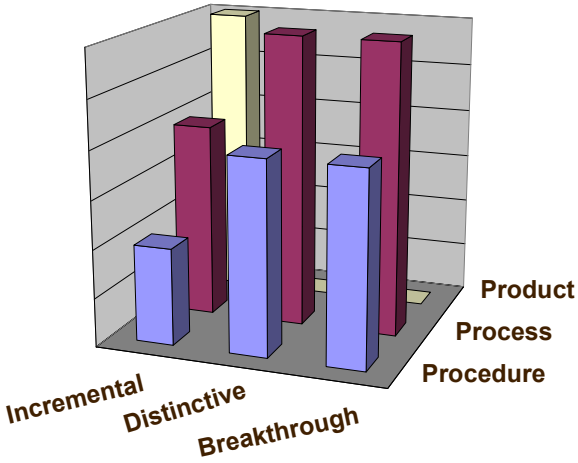
Ford had all the cars painted black, and all the parts black. This maximized the interchangeability of the parts, simplifying inventory. The joke was that you could get any color Model T you wanted as long as it was black.

The results were impressive. Ford created the auto industry and dominated it for years. Some people even credit him with the creation of the consumer society we live in. He made the cars inexpensive enough to be purchased by the common man and paid the workers well enough that they could become consumers.

Ford took the results of what he had learned about the product design and configuration and focused on breakthrough, distinctive, and incremental process and procedure innovations. Spectacularly successful as this strategy was, Ford made the mistake of believing in it too much. On his deathbed, he is reported to have said that the only thing wrong with the Model T was that it stopped selling. As Abernathy and

The strategy of cost minimization single mindedly followed with the Model T was a spectacular success. But the changes that accompanied it carried the seeds of trouble that affected the organization's ability to vary its product, alter its cost structure, and continue to innovate.

A Car for Everyone - Exploiting the Model T



From Rural Utility Vehicle to Living Room on Wheels: GM's Response

Environmental forces were at work in this market to create change. Social values were changing. People wanted more choice, more comfort, and more luxury. Women were becoming drivers, and the open carriages and hand-crank starter were definite drawbacks. People began to have more disposable income and attached status to the type of automobile they owned. Porter[2] explains that:

The classic example of the risks of cost leadership is the Ford Motor Company of the 1920s. Ford had achieved unchallenged cost leadership through limitation of models and varieties, aggressive backward integration, highly automated facilities, and aggressive pursuit of lower costs through learning. Learning was facilitated by the lack of model changes. Yet as incomes rose and many buy-

considering their second, the market began to place more of a premium on styling, model changes, comfort, and closed rather than open cars. Customers were willing to pay a price premium to get such features. General Motors stood ready to capitalize on this development with a full line of models. Ford faced enormous costs of strategic re-adjustment given the rigidities created by heavy investments in cost minimization of an obsolete model.

GM took advantage of Ford's preoccupation with an obsolete innovation strategy and developed a new innovation strategy that produced cars for everyone. They offered different price ranges, flexibility of choice, optional features, and a host of technological innovations, not the least of which was Kettering's electric starter and battery system. Alfred Sloan, the founder of GM, was quoted by Abernathy and Wayne[1] as saying,

> Mr. Ford ... had frozen his policy in the Model T,... preeminently an open-car design. With its light chassis, it was unsuited to the heavier closed body, and so in less than two years [by 1923], the closed body made the already obsolescing design of the Model T noncompetitive as an engineering design ...
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> .
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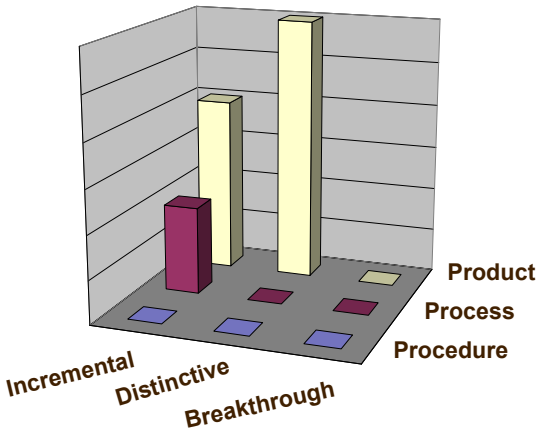
> The old [GM] strategic plan of 1921 was vindicated to a "T," so to speak, but in a surprising way as to the particulars. The old master had failed to master change .... His precious volume, which was the foundation of his position, was fast disappearing. He could not continue losing sales and maintain his profits. And so, for engineering and marketing reasons, the Model T fell .... In May 1927 .... he shut down his great River Rouge plant completely and kept it shut down for nearly a year to retool, leaving the field to Chevrolet unopposed and opening it up for Mr. Chrysler's Plymouth. Mr. Ford regained sales leadership again in 1929, 1930, and 1935, but, speaking in terms of generalities, he had lost the lead to General Motors.

While GM certainly produced many process and procedure innovations, the principal innovation strategy was a return to a distinctive and incremental product innovation thrust. As a result of correctly reading the driving forces for change and interpreting their impact on consumers, GM dominated the auto market for a number of years. However, as Abernathy, Clark, and Kantrow [3] point out, even when imports began to make inroads,

> [t]he comfortable maturity into which American automobile makers drifted during the 1950s and 1960s kept all such potentially disquieting questions at bay. Like their counterparts in other manufacturing industries, executives in Detroit felt they had found the key to unlock forever the bounties of a secure domestic market. Their confidence was soon to cost them dearly.

From Rural Utility Vehicle to Living Room on Wheels



Synthesizing Market Demands: Development of Toyota

In the 1950s and 1960s there were new driving forces for change. The United States was being suburbanized. People were fleeing from the inner cities and were in the process of creating the present-day megalopolises of Los Angeles, Houston, and Atlanta, to name just a few. The car became essential to get around cities that

were created by and for the car. But even more than that, the people left in the suburbs needed a second car. People had enough disposable income for two cars but would have liked to have a smaller, cheaper car for the second car.

There was a niche entry at the low end, Volkswagen, and the German manufacturer found a very successful niche market. Detroit tried to respond by building small cars, but found that it could not produce small cars cheaply enough to compete. The only way that Detroit could take cost out was to reduce quality, and that produced some disastrous results and eventual return to the big-car formula. To quote Abernathy, Clark, and Kantrow:[3]

> In retrospect, then, we can see that Detroit's early flirtation with a new calculus of automobile design and production was at base a continuation of past practice, a somewhat half-hearted attempt to view the competitive dynamics of the industry in different terms. Just how strong a grip the logic of large car production had on the industry can be seen in the compacts' steady increase in size and weight during the years they were in production. Indeed, each year seemed to bring a few more inches and a few more pounds until, by the late 1960s, even a once trim car like the Falcon had added a foot in length and 500 pounds in weight. Detroit, in effect, first tried to build small cars by making little big cars.

Detroit's insistence on following its old business theory caused a backlash. There were attacks on the quality and safety of the small cars, and a general discrediting of the large U.S. automakers. Kotler et al.[4] describe the situation:

> The U.S. automobile companies ignored these warning signals and continued to build larger and more expensive regular automobiles. This total ignorance of consumer demand led to significant negative car buyer attitudes - a pro-foreign, anti-Detroit syndrome. As Donald Peterson, vice president of car planning and research for Ford's Product Development Group, observed: "People believed that we make too many changes for change's sake - i.e., non-functional changes. There's a credibility gap. People don't believe our advertising. It has done more harm than good."

Toyota was watching. They saw the success of Volkswagen, the driving forces for change, the changing needs of auto buyers, and the power of innovation to redefine the small auto with quality. As Kotler et al.[4] state,

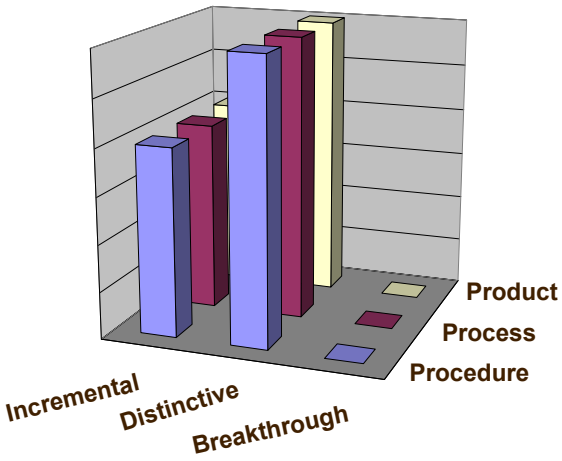
> As strategic planners of the highest order, the Japanese aim their marketing efforts, not at where the competition is situated, but at where they think the competitive battlefield will be in the future. Toyota did extensive market research in the United States using Volkswagen as the prototype. They used U.S. market research firms and U.S. data, and beat us at our own game. Their first entry, the Toyopet, was not a success, but they stuck with their new business theory and the result was a restructuring of the market.

The innovation strategy of Toyota focused on distinctive product, process, and procedure innovations. Then their thrust was quality driven incremental innovations across the board. Eventually, Toyota became the market leader.

This phase ended with US auto manufacturers learning how to build quality cars and regaining some of the market. At the same time, the social conscience of America was awakened and legislation forced car manufacturers to innovate focused on

incremental product innovations to increase mileage and reduce pollution.

Synthesizing Market Demands - Japan's Entry into the US Market



Life Style on Wheels

The innovation history of the automobile industry has been driven by demographic, social, and political driving forces for change. Ford's Model T was driven by a simple segmentation of the market. He aimed to meet the needs of the middle class male. When women became drivers, the demand for more comfort and ease of use was taken advantage of by GM. GM then segmented the market by income producing cars for every pocketbook. As Americans moved to the suburbs and began the baby boom, families needed a second car. They wanted an inexpensive small car. Detroit's response was low quality and unreliable small cars. Japan seized on the opportunity and built reliable small cars. Our social concern for the environment was turned into law that drove a different kind of innovation.

In recent times a different kind of segmentation has occurred - life styles. This actually began in the 50s with the advent of the station wagon. It was a car that met the needs of the suburban housewife to cart kids, of the suburban husband for home improvement projects and of the suburban family for vacations.

Jim Walczak[6] describes the recent history this way:

Many believe that the birth of the SUV began as the "depot hack." The depot hack was a vehicle that transported people (similar to today's taxi/hack) and luggage from the train stations (depots). They were widely known as a carryalls or suburbans. Depot hacks were also believed to be responsible for the evolution of the modern station wagon and the longest running SUV model, the Suburban. Another notable "father" to the SUV is the Jeep Wagon. While the Wagoneer was introduced as a model in 1963, it was the late 1940s that brought us Willy's Jeep Wagon. In fact an advertisement for the Willy's Wagon once called it a "utility vehicle" for the family.

There were many makes and models that used the term "suburban." In fact, both "carryall" and "suburban" began being applied to automotive models in the early 1920's. The early SUV was meant to be practical and a means to carry all, whether it be people or cargo. Throughout the 20s, 30s and 40s, there were numerous automotive brands using these two words for model names. But, it was Chevy's Suburban that carried the name into the 21st century.

The 50s brought a change to the suburbans and carryalls. Many models went to a car frame instead of the truck frames of their earlier predecessors. Dodge listed various wood-bodied station wagons as "Suburban" or "Suburban Carryall," and "Woody Wagons" were the cool thing to have even for the California surfers. How else would you carry the surfboards and enough gear for the weekend on the beach? Big engines and high performance were everywhere and the vehicles had plenty of room for the baby boomers to haul their large cargo of

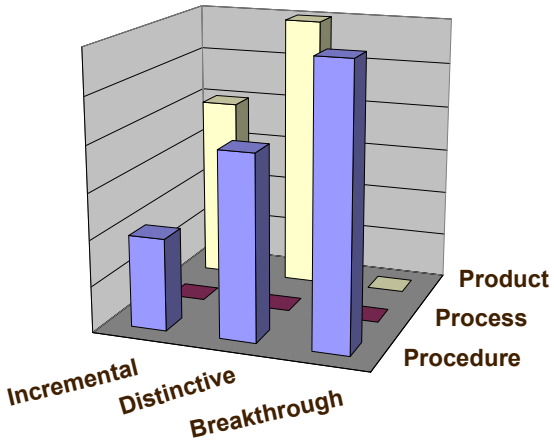
The 70's brought us disco, inflation, emissions control, high gas prices and the death of big engines and high performance. The small fuel-efficient Japanese cars and our nation's emissions policies added up to the next evolutionary step for the carryall. It came in like a 70s leisure suit; you know the one, the Chrysler mini-van. It was fuel efficient, front wheel drive and could carry a small family of big hair and bad 70'ish style clothes. But the mini-van saved Chrysler and helped the SUV begin its comeback to prominence.

Ronald Reagan's 80's brought us better fuel prices, lower interest rates and the need to feel sexier. Who wants to drive a mini-van that tells everyone we couldn't get the sports car because all of the kids and kids seats wouldn't fit in the latest model? With an SUV we could be the sporty, explorer, outdoor enthusiast...

"Looking for adventure with whatever comes my way, born to be wild" --Steppinwolf

The result was a plethora of distinctive product innovations as the segmentation of lifestyles, demography and income levels were filled. Although product quality was a given, there was relatively little new innovations in process. However, procedure innovations abounded as new ways to buy/sell cars emerged, driven by technology, and the whole relationship between the buyer and seller was changed with efforts like the Sat-

Life Style on Wheels



About the Authors

Donna C. L. Prestwood and Paul A. Schumann, Jr., co-founders of Glocal Vantage, Inc. (http://www.glocalvantage.com/) are experts with extensive experience and abilities in consulting, facilitation, research and training. Since forming their company twelve years ago they have developed innovation strategies and action plans that have provided competitive advantage for their clients in a variety of fields. They work hand-in-hand with their clients to assure successful implementation. Donna and Paul are recognized internationally, and are two of the world's leading authorities on strategy and innovation. Their book, ***Innovate!: Straight Path to Quality, Customer Delight and Competitive Advantage*** (McGraw-Hill, 1994) encapsulates many of the concepts and processes that form the basis of their approaches to solving complex organizational and business problems.

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